

back-up materials considered or relied upon in any response to Question No. 54 appearing in said Form N-SAR documents.

REQUEST FOR PRODUCTION NO. 34:

All documents and tangible things in your possession, custody, or control sufficient to identify all accounts other than The Funds that have been serviced by any Portfolio Leader or Portfolio Member of any of the Investment Management Teams for any of The Funds at any and all times during the Damages Period.

REQUEST FOR PRODUCTION NO. 35:

All documents and tangible things in your possession, custody, or control that constitute, reflect, concern, refer, or relate to any explanations, characterizations, or descriptions of the activities that each of the Investment Management Teams perform for each of The Funds in connection with furnishing them with investment programs and/or making investment decisions for them about what securities shall be purchased, held, sold, or exchanged.

REQUEST FOR PRODUCTION NO. 36:

All documents and tangible things in your possession, custody, or control that constitute, reflect, or concern any internal practices, policies, or procedures followed by PIM, PRM, or other affiliated Putnam entities in providing services and/or resources to any of The Funds in exchange for Management Fees or 12b-1 Fees.

REQUEST FOR PRODUCTION NO. 37:

All documents and tangible things in your possession, custody, or control that constitute, refer, or relate to contracts or agreements as between PIM and/or PRM on the one hand, and PAC on the other hand.

REQUEST FOR PRODUCTION NO. 38:

All documents and tangible things in your possession, custody, or control that concern, refer, or relate to the issues of whether any employee of PIM and/or PRM can or does perform services on behalf of, or for the benefit of, PAC, or whether any employee of PAC can or does perform services on behalf of, or for the benefit of, PIM and/or PRM.

REQUEST FOR PRODUCTION NO. 39:

All documents and tangible things in your possession, custody, or control that reflect, concern, refer, or relate to any sharing of resources as between PIM and/or PRM on the one hand, and PAC on the other hand.

REQUEST FOR PRODUCTION NO. 40:

All documents and tangible things in your possession, custody, or control that reflect, concern, refer, or relate to nature or extent of the services that PAC provides under any Management Contract to any of its Institutional Accounts, or to the fee structures and/or breakpoints that PAC utilizes with respect to any of its Institutional Accounts.

REQUEST FOR PRODUCTION NO. 41:

All documents and tangible things in your possession, custody, or control sufficient to identify (including home and business addresses) all officers and all members of the Boards of Trustees, and their respective Boards of Trustees Committees, for each of The Funds at any and all times from January 1, 2002 to the present. With respect to each identified Trustee, such documents and tangible things should also be sufficient to identify their respective statuses as either interested or disinterested Trustees.

REQUEST FOR PRODUCTION NO. 42:

All documents and tangible things in your possession, custody, or control that concern, refer to, or address the existence, substance, merits, or outcomes of either of the Illinois Actions, the above-captioned action, or the Complaint filed herein.

REQUEST FOR PRODUCTION NO. 43:

All documents and tangible things in your possession, custody, or control that concern, refer to, or address any of the requirements or standards imposed by Section 36(b) of the Investment Company Act of 1940, 15 U.S.C. § 80a-35(b), or by Rule 12b-1 promulgated under that Act, 15 U.S.C. § 80a-12(b), 17 C.F.R. § 270.12b-1.

REQUEST FOR PRODUCTION NO. 44:

All documents and tangible things in your possession, custody, or control that concern, refer to, or address the issues of if, whether, how, or to what extent PIM has complied, should comply, or may comply with any of the requirements or standards imposed by Section 36(b) of the Investment Company Act of 1940, 15 U.S.C. § 80a-35(b).

REQUEST FOR PRODUCTION NO. 45:

All documents and tangible things in your possession, custody, or control that concern, refer to, or address the issues of if, whether, how, or to what extent PRM, other affiliated Putnam entities, and/or any of the Distribution Plans adopted by any of the Putnam Mutual Funds has complied, should comply, or may comply with any of the requirements or standards imposed by Rule 12b-1 of the Investment Company Act of 1940, 15 U.S.C. § 80a-12(b), 17 C.F.R. § 270.12b-1.

REQUEST FOR PRODUCTION NO. 46:

All documents and tangible things in your possession, custody, or control sufficient to identify all persons with decision-making responsibility relating to the dispositions or uses that PRM or other affiliated Putnam entities have made of the 12b-1 Fees received from any of The Funds at any and all times during the Damages Period.

REQUEST FOR PRODUCTION NO. 47:

All documents and tangible things in your possession, custody, or control that concern, refer, or relate to the issue of how the portfolio holdings and/or the portfolio turnover rates of any of The Funds compare or contrast to the portfolio holdings and/or the portfolio turnover rates of any of the Institutional Accounts managed by PAC or any non-Putnam entity.

REQUEST FOR PRODUCTION NO. 48:

All documents and tangible things in your possession, custody, or control relevant to establishing the portfolio holdings (on a daily or other periodic basis) and/or the portfolio turnover rates of each of The Funds at any and all times during the Damages Period.

REQUEST FOR PRODUCTION NO. 49:

All documents and tangible things in your possession, custody, or control that concern, refer, or relate to comparisons or contrasts drawn between the risk ratings or profiles of any of The Funds on the one hand, and the risk ratings or profiles of any of the Institutional Accounts managed by PAC or any non-Putnam entity on the other hand.

REQUEST FOR PRODUCTION NO. 50:

All documents and tangible things in your possession, custody, or control that concern, refer to, or address the investment performance or returns of any of The Funds.

REQUEST FOR PRODUCTION NO. 51:

All documents and tangible things in your possession, custody, or control that concern, refer to, or address the issues of if, whether, how, or to what extent the investment performance or returns of any of The Funds have underperformed relative to those of any other mutual funds or Institutional Accounts.

REQUEST FOR PRODUCTION NO. 52:

All documents and tangible things in your possession, custody, or control that reflect, concern, or relate to any comparisons or contrasts drawn between the investment performance or returns of any of The Funds on the one hand, and the investment performance or returns of any Institutional Account or any non-Putnam mutual fund on the other hand.

REQUEST FOR PRODUCTION NO. 53:

All documents and tangible things in your possession, custody, or control that concern, refer, or relate to the investment performance or returns of any Institutional Account managed by PAC.

REQUEST FOR PRODUCTION NO. 54:

All documents and tangible things in your possession, custody, or control that reflect, concern, refer, or relate to any decision or agreement made by PIM and/or PRM to waive fees and reimburse expenses of any of The Funds through at least July 31, 2005 to the extent necessary to ensure that any of The Funds' expenses do not exceed the average expenses of other funds viewed by Lipper, Inc. as having the same investment classification or objective of any of The Funds.

REQUEST FOR PRODUCTION NO. 55:

All documents and tangible things in your possession, custody, or control sufficient to establish the amounts of Putnam-related compensation of any type (including cash and non-cash forms of compensation) earned or received by each of the members of the Investment Management Teams and the Boards of Trustees for each of the Funds at any and all times from January 1, 2002 to the present.

REQUEST FOR PRODUCTION NO. 56:

All documents and tangible things in your possession, custody, or control that reflect, concern, refer, or relate to any decision or agreement made by PIM and/or PRM effective as of January 1, 2004 to cease directing brokerage to broker-dealers in connection with the sale of fund shares.

REQUEST FOR PRODUCTION NO. 57:

All documents and tangible things in your possession, custody, or control that constitute the Fundamental Agreements and Declarations of Trust for each of The Funds, and/or any amendments or modifications thereto.

REQUEST FOR PRODUCTION NO. 58:

All documents and tangible things in your possession, custody, or control that constitute, reflect, or concern any investment policies, investment objectives, investment classifications, and/or investment restrictions applicable to each of The Funds at any and all times during the Damages Period.

REQUEST FOR PRODUCTION NO. 59:

All documents and tangible things in your possession, custody, or control that constitute, reflect or concern any policies relating to the practice of simultaneously servicing

multiple accounts that have been applicable to any member of any Investment Management Team for any of the Putnam Mutual Funds.

REQUEST FOR PRODUCTION NO. 60:

All documents and tangible things in your possession, custody, or control that constitute, reflect, or concern any policies, practices, or procedures relating to trade allocations and/or to "cross-trading" among or between Putnam-advised accounts.

REQUEST FOR PRODUCTION NO. 61:

All documents and tangible things in your possession, custody, or control that constitute any written code of ethics applicable to any employee of PIM or PRM.

REQUEST FOR PRODUCTION NO. 62:

All documents and tangible things in your possession, custody, or control that constitute any record retention policies adopted or followed by PIM and/or PRM.

REQUEST FOR PRODUCTION NO. 63:

All documents and tangible things in your possession, custody, or control that concern, refer, or relate to the issues of if, whether, or to what extent PIM and/or PRM have insurance coverage potentially applicable to the costs of defending the above-captioned action, and/or to indemnification for any damages awarded or assessed in the above-captioned action.

REQUEST FOR PRODUCTION NO. 64:

All documents and tangible things in your possession, custody, or control that constitute non-publicly issued financial reports prepared by, or on behalf of, any Putnam entity that concern or relate to the provision of management and/or investment advisory services to any of The Funds. Such financial reports might be expected to include, for example,

calculations, assessments, itemizations, reviews, cost benefit analyses, or other summarizations of PIM's costs and expenses incurred, income and revenues received, and/or profits realized.

REQUEST FOR PRODUCTION NO. 65:

All documents and tangible things in your possession, custody, or control relevant to identifying, and establishing the amounts of, each of the various types of monies, fees, and/or reimbursable expenses *other than Management Fees or 12b-1 Fees* that PIM, PRM, or other affiliated Putnam entities have received from any of The Funds at any and all times during the Damages Period.

REQUEST FOR PRODUCTION NO. 66:

All documents and tangible things in your possession, custody, or control relevant to establishing the profits and profit margins that PIM, PRM, or other affiliated Putnam entities have realized in connection with each of the various types of monies, fees, and/or reimbursable expenses *other than Management Fees or 12b-1 Fees* that they have received from any of The Funds at any and all times during the Damages Period.

REQUEST FOR PRODUCTION NO. 67:

All documents and tangible things in your possession, custody, or control relevant to establishing the costs, expenses, and expense ratios that PIM, PRM, or other affiliated Putnam entities have incurred in connection with each of the services and/or resources that they have provided in exchange for the various types of monies, fees, and/or reimbursable expenses *other than Management Fees or 12b-1 Fees* that they have received from any of The Funds at any and all times during the Damages Period.

REQUEST FOR PRODUCTION NO. 68:

All documents and tangible things in your possession, custody, or control relevant to establishing what other persons or entities were paid monies, and in what amounts, by PIM and/or PRM in connection with their provision of services to The Funds at any and all times during the Damages Period.

REQUEST FOR PRODUCTION NO. 69:

All documents and tangible things in your possession, custody, or control relevant to identifying, and establishing the amounts of, each of the various types of costs and expenses that each of The Funds incurred at any and all times during the Damages Period *other than from their payments of Management Fees or 12b-1 Fees* including, but not limited to, investor servicing fee expenses; custodian fee expenses; trustee compensation costs and expenses; administrative services expenses; and/or any other types of costs or expenses.

REQUEST FOR PRODUCTION NO. 70:

All documents and tangible things in your possession, custody, or control relevant to identifying each of the various types of services and/or resources that were provided to each of The Funds at any and all times during the Damages Period in exchange for the various types of monies, fees, and/or reimbursable expenses *other than Management Fees or 12b-1 Fees* that were paid by any of The Funds.

REQUEST FOR PRODUCTION NO. 71:

All documents and tangible things in your possession, custody, or control relevant to identifying and establishing the persons or entities who received payments from any of The Funds, and in what amounts, in connection with the various types of costs and expenses that

The Funds incurred at any and all times during the Damages Period *other than from their payments of Management Fees or 12b-1 Fees.*

REQUEST FOR PRODUCTION NO. 72:

All documents and tangible things in your possession, custody, or control that constitute the minutes or notes of each meeting of any of the Boards of Trustees, or of their Boards of Trustees Committees, for any of The Funds held at any time from January 1, 2002 to the present.

REQUEST FOR PRODUCTION NO. 73:

All documents and tangible things in your possession, custody, or control that constitute materials shown or provided to, and/or considered by, any of the Boards of Trustees, or their Boards of Trustees Committees, for any of The Funds in connection with any of their meetings held at any time from January 1, 2002 to the present.

REQUEST FOR PRODUCTION NO. 74:

All documents and tangible things in your possession, custody, or control that constitute any Management Contract and/or Distribution Plans entered into or adopted by any of The Funds, including any earlier versions, drafts, or proposals of or for any such Management Contracts or Distribution Plans.

REQUEST FOR PRODUCTION NO. 75:

All documents and tangible things in your possession, custody, or control that constitute, reflect, concern, refer, or relate to any negotiations, bargaining, or communications relating to any actual or proposed Management Fees, Management Contracts, 12b-1 Fees, or Distribution Plans among or between PIM, PRM, or other affiliated Putnam entities, and any of the Boards of Trustees, or their Boards of Trustees Committees, for any of The Funds.

REQUEST FOR PRODUCTION NO. 76:

All documents and tangible things in your possession, custody, or control that reflect, concern, refer, or relate to any consideration given by any of the Boards of Trustees, or their Boards of Trustees Committees, to the issue of whether or not to approve any actual or proposed Management Contract or Distribution Plan for any of The Funds.

REQUEST FOR PRODUCTION NO. 77:

All documents and tangible things in your possession, custody, or control that constitute or reflect any information or materials provided to, and/or reviewed by, any of the Boards of Trustees, or their Boards of Trustees Committees, in connection with their consideration of whether or not to approve any actual or proposed Management Contract or Distribution Plan for any of The Funds. Such documents and tangible things should include, but not be limited to, those that constitute or reflect information or materials furnished pursuant to § 15(c) of the Investment Company Act of 1940.

REQUEST FOR PRODUCTION NO. 78:

All documents and tangible things in your possession, custody, or control that constitute, reflect, concern, refer, or relate to any criteria or policies used by any of the Boards of Trustees, or their Boards of Trustees Committees, in connection with their consideration of whether or not to approve any actual or proposed Management Contract or Distribution Plan for any of The Funds.

REQUEST FOR PRODUCTION NO. 79:

All documents and tangible things in your possession, custody, or control that constitute, reflect, concern, refer, or relate to any suggestion, opinion, conclusion, or proposal about potentially withholding approval of any Management Contract or Distribution Plan for

any of the Putnam Mutual Funds by any of the Boards of Trustees, or by their Boards of Trustees Committees.

REQUEST FOR PRODUCTION NO. 80:

All documents and tangible things in your possession, custody, or control that reflect, concern, refer, or relate to any consideration given by any of the Boards of Trustees, or their Boards of Trustees Committees, to terminating any Management Contract and/or Distribution Plan existing between any of the Putnam Mutual Funds and PIM or PRM.

REQUEST FOR PRODUCTION NO. 81:

All documents and tangible things in your possession, custody, or control that reflect, concern, refer, or relate to any consideration given by any of the Boards of Trustees, or their Boards of Trustees Committees, to permitting, directing or obligating any of the Putnam Mutual Funds to pay Management Fees and/or 12b-1 Fees to any entities other than PIM or PRM.

REQUEST FOR PRODUCTION NO. 82:

All documents and tangible things in your possession, custody, or control that reflect, concern, refer, or relate to any consideration given by any of the Boards of Trustees, or their Boards of Trustees Committees, to the requirements or standards imposed by Section 36(b) of the Investment Company Act of 1940 or Rule 12b-1 promulgated thereunder, and/or to the issues of whether PIM, PRM, or other affiliated Putnam entities have acted in compliance therewith in relation to any Management Contract or Distribution Plan with any of the Putnam Mutual Funds.

REQUEST FOR PRODUCTION NO. 83:

All documents and tangible things in your possession, custody, or control that constitute or reflect any information or materials concerning Management Fees or 12b-1 Fee charged by entities other than PIM or PRM that have been shown or provided to, and/or considered by, any of the Boards of Trustees, or their Boards of Trustees Committees, for any of the Putnam Mutual Funds.

REQUEST FOR PRODUCTION NO. 84:

All documents and tangible things in your possession, custody, or control that constitute or reflect any information or materials concerning PAC that have been shown or provided to, and/or considered by, any of the Board of Trustees, or their Board of Trustees Committees, for any of the Putnam Mutual Funds.

REQUEST FOR PRODUCTION NO. 85:

All documents and tangible things in your possession, custody, or control that constitute or reflect any information or materials concerning the status, activities, investment performance or returns, or expense ratios of any of The Funds that have been shown or provided to, and/or considered by, any of the Boards of Trustees, or their Boards of Trustees Committees.

REQUEST FOR PRODUCTION NO. 86:

All documents and tangible things in your possession, custody, or control that reflect, concern, refer, or relate to any consideration given by any of the Boards of Trustees, or their Boards of Trustees Committees, in deciding whether or not to approve any actual or proposed Management Contract for any of The Funds to the factors for assessing the reasonableness of Management Fees established in Gartenberg v. Merrill Lynch Asset Management, Inc., 694

F.2d 923 (2d Cir. 1982) and its progeny. These factors include the following: (i) sharing of economics of scale benefit; (ii) comparisons to other relevant fee structures; (iii) the nature and quality of services provided; (iv) the profitability of The Funds to PIM and its affiliates; (v) the receipt of other Fall-Out Benefits or indirect profits; and (vi) the independence and conscientiousness of the Trustees.

REQUEST FOR PRODUCTION NO. 87:

All documents and tangible things in your possession, custody, or control that reflect, concern, refer, or relate to any consideration given by any of the Boards of Trustees, or their Boards of Trustees Committees, for any of the Putnam Mutual Funds to articles written by critics of the alleged disparity between retail and institutional fee schedules, to articles by the ICI or others defending such fee differences, and/or to decisions of the courts providing guidance with respect to such issues.

REQUEST FOR PRODUCTION NO. 88:

All documents and tangible things in your possession, custody, or control that concern, refer, or relate to the issues of if, whether, how, or to what extent Economies of Scale Benefits and/or Fall-Out Benefits exist in the mutual fund industry relative to the provision of services in connection with Management Contracts and/or Distribution Plans.

REQUEST FOR PRODUCTION NO. 89:

All documents and tangible things in your possession, custody, or control that concern, refer, or relate to the issues of if, whether, how, or to what extent Economies of Scale Benefits and/or Fall-Out Benefits have been, are, could be, or should be shared as between providers of services in connection with Management Contracts and/or Distribution Plans on the one hand, and mutual funds or their shareholders on the other hand.

REQUEST FOR PRODUCTION NO. 90:

All documents and tangible things in your possession, custody, or control that concern, refer, or relate to the issues of if, whether, how, or to what extent PIM, PRM, and/or other affiliated Putnam entities realize Economies of Scale Benefits and/or Fall-Out Benefits in connection with their provision of any services or resources to any of the Putnam Mutual Funds.

REQUEST FOR PRODUCTION NO. 91:

All documents and tangible things in your possession, custody, or control that concern, refer, or relate to the issues of if, whether, how, or to what extent PIM, PRM, and/or other affiliated Putnam entities share with any of the Putnam Mutual Funds any Economies of Scale Benefits and/or Fall-Out Benefits they realize in connection with their provision of any services or resources to any of the Putnam Mutual Funds.

REQUEST FOR PRODUCTION NO. 92:

All documents and tangible things in your possession, custody, or control that constitute, reflect, or concern any quantification of Economics of Scale Benefits and/or Fall-Out Benefits that PIM, PRM, and/or other affiliated Putnam entities realize in connection with their provision of any services or resources to any of the Putnam Mutual Funds.

REQUEST FOR PRODUCTION NO. 93:

All documents and tangible things in your possession, custody, or control that concern, refer, or relate to the issues of whether PIM, PRM, or other affiliated Putnam entities have failed to share any Economies of Scale Benefits and/or Fall-Out Benefits with any of the Putnam Mutual Funds to a degree that has been inequitable, unfair, harmful, detrimental,

disadvantageous, or contrary to the interests or welfare of any of the Putnam Mutual Funds or their shareholders.

REQUEST FOR PRODUCTION NO. 94:

All documents and tangible things in your possession, custody, or control that constitute, reflect, concern, refer, or relate to any model schedules for Management Fees developed by, or on behalf of, PIM, PRM, and/or any of the Boards of Trustees, or their Boards of Trustees Committees, for any of the Putnam Mutual Funds, including any earlier versions, drafts, or proposals of or for such model fee schedules.

REQUEST FOR PRODUCTION NO. 95:

All documents and tangible things in your possession, custody, or control that reflect, concern, or relate to any comparisons or contrasts drawn between the concepts of investment performance on the one hand, and investment process on the other hand, including investment process as it relates to research and/or decision-making.

REQUEST FOR PRODUCTION NO. 96:

All documents and tangible things in your possession, custody, or control that constitute, reflect, concern, refer, or relate to any explanations, characterizations, or descriptions of the investment process that has been or may be followed by PIM in providing services to any of the Putnam Mutual Funds, including the investment process as it relates to research and/or decision-making.

REQUEST FOR PRODUCTION NO. 97:

All documents and tangible things in your possession, custody, or control that constitute, reflect, concern, refer, or relate to any indemnifications provided by PIM, PRM, or other affiliated Putnam entities to any of the Putnam Mutual Funds.